



Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at <http://about.jstor.org/participate-jstor/individuals/early-journal-content>.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

border of Ohio to Lake Erie. I may cite, as example, *Dromogomphus spoliatus*, which, until taken by me at Toledo, was recorded only from the extreme south. I do not remember to have seen it in any private or public collections. This year, along the Maumee River, it was exceedingly abundant."

Changes of Intestinal Epithelium in Tenebrio.—Herr C. Rengel has studied the changes of the intestinal epithelium in the metamorphosis of the Mealworm (*Tenebrio molitor*) and compared them with those occurring elsewhere. Regenerative cells, from which the new epithelium is derived, appear as subepithelial islands in very young larvæ, but it is only when the metamorphosis begins that they give rise to the elements which form the invaginal epithelium. As in Muscidæ the disruptions begin with an energetic contraction of the muscular layer, and the old mid-gut epithelium is raised off. Its disintegrating cells are held together in a "cyst" by their membranea propria, and form the "yellow body." The muscles undergo gradual disruption without active invasion by phagocytes as occurs in Muscidæ. Korotneff compared the two modes to chronic and acute pathological processes. As soon as the larval muscular layer had been disrupted, nuclei are seen surrounding the epithelial cylinder. Whether these nuclei are old or new elements is doubtful, but the small cells of which they form the centers become the fibrils. Rengel's opinion is that many muscle-cells survive the general revolution, just as a large number of epithelial regeneration cells persist. The latter give origin to the epithelial cylinder, the former to the muscular layer. (Journ. Royal Micros. Soc.)

PSYCHOLOGY.¹

Dreams.—At the Psychological Congress last year, Dr. J. Mourly Vold, of Christiania, reported some experiments which he had undertaken with regard to the artificial stimulation of visual elements in dreams. The subjects included a large number of persons of different ages, sexes and classes, but were mostly adults of an intellectual type above the average; all those selected were good dreamers. Dr. Vold arranged the experiments as follows: To each of his subjects he sent, from time to time, a package containing figures of animals, well-known objects, etc., cut out of white paper, or some striking colored object—

¹ Edited by H. C. Warren, Princeton University, Princeton, N. J.

a flower, coin, etc. The package was only opened after the subject was in bed. The contents were then displayed on a black background, and scrutinized closely for a considerable time—usually from two to ten minutes—without intermission; in some cases for half an hour or more, interspersed with periods of rest. The light was then put out, and the eyes closed. In the morning, immediately on awaking, the subject wrote a report of his dreams, together with the conditions of fatigue the night before, length of sleep, etc. Prof. Vold supplemented these reports, when it seemed desirable, by verbal questionings. Some 300 separate tests of this nature were made.

On examining the results, it was found that the character of the dreams depended on a number of distinct factors, such as the quietness and uneventfulness of the preceding evening, but that it did not depend (so far as could be discovered) on the specific time of experimentation or of awakening, nor on the obtaining of after-images from the given objects. The size, form and color of the objects were rarely all reproduced together, but one or two of these conditions often reappeared in the dreams. The form and size of the object were frequently reproduced, either as in the original or with some modification; this transformation often occurred in the dream itself. The color exerted an influence independent of the other factors, and this proved the point of greatest interest in the results. When the given objects were black or white (with complimentary background) the dreams in many instances exhibited recurring contrasts of light and shade. Often the object reappeared (with considerable change of form) in the same color as shown; or some other object appeared in the given color, which might be a very unusual one for it to take; in this case, either the color of the background reappeared also, or no background was discerned. In experiments with colors other than black and white, the given color also tended to reappear; this was especially the case with red; the color might recur in the same tone, saturation and brightness as in the given object, or it might appear modified in these respects; or, such a modification might take place in the course of the dream, as in the case of modifications of form.

The author concludes from these experiments that the visual apparatus immediately before awakening reproduces to a certain extent the condition present at the time of falling asleep; but that the original associations of form, size, color and abstract representation are broken up, and new syntheses constructed in their stead. In these new syntheses the common visual forms, or abstract representations of daily life, are apt to become associated with the colors or outlines of objects which

affect the organ of vision just before the beginning of sleep. Some such theory seems necessary to account for the facts brought out in these experiments.

In a note in the *Revue philosophique*, M. E. Goblot speaks of the connection between dreams and the act of awakening. He urges the view that dreams which we remember are those which accompany the latter state. The passage from sleep to wakefulness, like that from wakefulness to sleep, is not an instantaneous process; it occupies at least an appreciable time. The dreams which we are able to remember afterwards are those that belong to this period of transition; and this fact, the author insists, is more than a mere coincidence. When we analyze a remembered dream, we find in its last stages always some elements of external sensation, which gradually (or quickly) unfold into the conditions of normal waking life. All the organs of sense and movement do not wake at the same time; and to this is due the transition period just mentioned. It is only the dreams of this period—in which some of the conscious elements are those of sleep, while others belong to waking life—that we are able to connect through memory with after-consciousness; and the memory connection is due to precisely this association of elements of waking consciousness with the dream elements. This is the reason, says M. Goblot, why we do not remember those dreams occurring early in the night, in which we talk, cry out, gesticulate, or walk, though such dreams can scarcely fail to have been most vivid; for, unless they result in our awakening, there is no associative element in waking consciousness capable of recalling them. Even those dreams which we do recall have usually so slender an associative element that they are speedily forgotten, unless we take special pains to impress them upon the memory by writing them down, or rehearsing them soon after waking.

The present writer would suggest that more attention be paid, in the study of dreams, to determining the normal visualizing power of the individual. It is well known that some persons habitually "visualize" their visual memories (*i. e.*, represent them in the form and color of the original); while others, including those more accustomed to abstract thinking, are lacking in this power, and substitute words or other symbolism for the visual picture. The same is true to some extent of sounds and other classes of sense memories. In sleep, where outer stimulation is practically wanting, central images play the chief rôle, and in the absence from consciousness of more vivid presentations are mistaken by the subject for primary sense impressions. It would seem, then, that there ought to be a broad distinction of some sort between the

dreams of the visualizing and symbolizing types of individuals. Whether good visualizers are better dreamers, or whether their dreams are merely of a different character from those of symbolizers, remains to be seen. But certainly the question is well worth investigating. So far as I know, no attempt has yet been made to gather data bearing on this point.

—H. C. W.

Courtship of Grasshoppers.¹—Prof. E. B. Poulton has observed this process in two different genera of Acridiidae. In the case of *Pezotettix pedestris* the sombre brown male quietly awaits, without audible stridulation, the appearance of a female, and jumps upon her unawares. At first she tries to escape, but after a little struggle submits. Before pairing the male nibbles the female gently, and while holding her keeps moving his short legs up and down. This latter process Prof. Poulton regards as a vestige of true stridulation, and that it may still be of use in influencing the female in some way.

In the case of *Gomphocerus sibiricus* the process is much more ceremonious, the males stretching out their four palpi, stridulating, and even patting the female. Apparently the habits are influenced by temperature, for certain phases of courtship could be studied most satisfactorily when the insects were first aroused to activity.—F. C. K.

ANTHROPOLOGY.²

Recent Pile Structures made by Seminole Indians in East Florida.—Mr. Henry G. Bryant, Secretary of the Geographical Society of Philadelphia, informs me that he saw, in the latter part of March, 1896, several pile-built structures made by modern Seminole Indians rising above the water of a salt estuary of the New River in Dade Co., Florida. He, in company with Dr. Murray Jordan, had visited the Seminole settlement called Big City, situated on the eastern side of the Everglades, within reach of the tide-water of New River, and above the site of old Fort Lauderdale, a region now made accessible by railroad from Lake Worth to Miami.

Ascending the river in a small steamboat for some eight or ten miles above Fort Lauderdale, Mr. Bryant, with a local guide, had proceeded in a flat-bottomed boat over a submerged meadow-like country to Big City, which he found to consist of six or eight rectangular huts

¹ Trans. Ent. Soc. Lond., 1896. J. R. M. S., p. 516.

² This department is edited by H. C. Mercer, University of Pennsylvania.